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ABSTRACT

This resource guide contains information on curriculum guides, resources for teachers, computer software and computer related programs, audio/visual presentations, model aircraft and demonstration aids, training seminars and career education, and an aerospace bibliography for primary grades. Each entry includes all or some of the following items: title, an address and phone number, and a brief description. Topics include: math and space, safety, history of flight, living in space, computer shareware, futures in space, space shuttle, starlab, Venus, planetariums, model rockets, radio controlled aircraft, museums, and helicopters. (KR)

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AVIATION & SPACE EDUCATION

A TEACHER'S RESOURCE GUIDE

PREPARED UNDER THE DIRECTION OF

TEXAS DEPARTMENT OF AVIATION
P.O. BOX 12607
AUSTIN, TEXAS 78711
(512) 476-9262

January 1991

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~~Susan Page~~
Div. of Aviation

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Curriculum Guides

Aviation Curriculum Guide for Middle School Level, Secondary School Level
Department of Transportation
Federal Aviation Administration
Office of Public Affairs
Washington, D.C. 20591
This guide is designed especially for teachers who have had no special training in aviation education. The content of this guide is organized into four curricular areas: language arts, math, science and social studies. There is much correlation between the areas and the teacher is encouraged to select from the activities and materials in any area that contribute to the achievement of the teaching objectives. It can most effectively be used to supplement curricular materials of all instructional areas with aviation and guide the teacher during such ventures.

Alabama Aerospace Curriculum Guide
Alabama Department of Aeronautics
555 South Perry Street, Suite 308
Montgomery, Alabama 36130
(205) 261-4480
The Alabama Aerospace Curriculum Guide is designed for teachers of grades K-3 who have little or no experience in the area of aviation or space. The purpose of this guide is to provide an array of aviation and space activities which may be used by teachers to enrich locally-designed programs.

Math Space Mission
Dale Seymour Publications
P.O. Box 10888
Palo Alto, CA 94303
The overall goal of the Regional Math Network is to invigorate individual teachers and to enhance the quality of the materials and techniques of those in the mathematics teaching profession.

Safety in the Air
U.S. Dept. of Transp.
Federal Aviation Administration
Washington, D.C. 20591
A curriculum about flight and air traffic control designed for middle school students

Youth in Aviation
Texas Department of Aviation
P.O. Box 12607
Austin, Texas 78711-2607
(512) 476-9262
A guide to aviation activities and designed for junior high and senior high students interested in aviation.

Curriculum Guides (continued)

Charles A. Lindbergh
National Headquarters
Civil Air Patrol
Maxwell AFB, Alabama 36112-5572
This aerospace education learning packet contains information about Charles A. Lindbergh. He was a highly successful aviator who pioneered many achievements in aviation and gave his willing assistance to others. This is a C.A.P. publication which relates aviation topics to all school subjects (math, english, social studies, science, etc.)

NASA Facts
NASA
Public Information Office
Mail Code PA-PIB
John F. Kennedy Space Center
Kennedy Space Center, FL 32899
(305) 867-2468
Changing programs of NASA are outlined in this beautifully illustrated magazine. The magazine is sent free of charge.

RESOURCES FOR TEACHERS

A Model Aerospace Curriculum
U.S. Dept. of Transp.
Federal Aviation Administration
Office of Public Affairs
Aviation Education Program
Washington, D.C. 20591
This publication briefly describes the philosophy underlying August Martin High School; how it came to be created, the techniques of its community involvement, and its curriculum approaches. Other school systems will want to look at this institution both as an inspiration and, either in part or in toto, as a model that can be duplicated in another locale.

Aerospace Spinoffs
Director, Technology Utilization Division
NASA Scientific & Technical Information Facility
Post Office Box 8757
Baltimore, Maryland 21240
This publication describes how NASA's acquired knowledge has been reapplied to new products and processes of benefit to the national economy, industrial efficiency and human welfare.

ASA
6001 Sixth Avenue So.
Seattle, WA 98108-3307
(206) 763-0277
Catalog of the largest supplier of aviation materials.

Aviation Education in the States
Bruce D. Hoover
Visiting Research Associate
National Association for State Aviation Officials
Center for Aviation Research and Education
Washington, D.C.
A report on aviation education activities in state aviation agencies.

Aviation Fundamentals
Aviation Fundamentals System
Jeppesen Sanderson
55 Inverness Drive East
Englewood, CO 80112-5498
1-800-525-7379, Ext 215
Jeppesen Sanderson announces an all-new Aviation Training System developed exclusively for school, colleges, and universities. It includes videotape cassettes, completely new texts, and support materials that are specially designed to work together, providing you with the most comprehensive teaching system available.

Resources for Teachers (continued)

Aviation Fundamentals
Instrument Rating Manual
Richard T. Butler
Aviation Education Administrator
Bureau of Aviation
Department of Transportation
Commonwealth of Pennsylvania

A planned course of study to be used with the Aviation Fundamentals textbook copyright 1983 and copyright 1988 by Jeppesen Sanderson, Inc.

Aviation Education Activities for Educators
National Association of State Aviation Officials (NASAO)
Center for Aviation Research and Education (CARE)
Metro Plaza One, Suite 505A
8401 Colesville Road
Silver Spring, MD 20910
(301) 495-2848
This is a report on State Aviation Agency involvement in aviation education activities for educators. This report documents the activities now in use by the States and explores the possibilities of spreading some of these programs across the nation.

Aviation Education Programs & Materials
Federal Aviation Administration
Office of Public Affairs
Aviation Education Program
800 Independence Ave.,S.W.
Washington D.C. 20591
(202) 267-3476
List includes publications designed to provide instructional materials consisting of accurate, timely information to enrich and enhance general studies programs with concept relating to aviation. Publications are free of charge.

Aviation Book Company Catalog
Aviation Book Company
1640 Victory Blvd.
Glendale, CA 91201
(818) 240-1771
Aviation specialists since 1964. Publications, videocassette, pilot supplies, gifts and gadgets are available.

Aviation for the Elementary Level
Aviation Education Department
Beech Aircraft Corporation
P.O.Box 85
Wichita, Kansas 67201
A complete aviation kit that can be used without extensive preparation, planning or research. The material was designed for grades four, five and six, but it can be adapted for grades K-9.

Aviation Education Programs & Materials
U.S. Dept. of Transp.
Federal Aviation Administration
Office of Public Affairs
Aviation Education Program
800 Independence Ave., S.W.
Washington, D.C. 20591
(202) 267-3476
The FAA offers a selection of educational publications for teachers and school administrators. These publications are designed to provide instructional materials consisting of accurate, timely information to enrich and enhance general studies programs with concepts relating to aviation, and to inform students about opportunities for careers in aviation.

Come Fly With Me
Texas State Technical Institute/Texas Aviation and Space
Education Forum
Texas State Technical Institute
Department of Aerospace Technologies
Waco, Texas 76705
(817) 867-4838
Come Fly With Me was developed and copyrighted by the Michigan Aeronautics Commission and brought to Texas by the Texas Aeronautics Commission (now known as the Texas Department of Aviation) who received authority to modify the program for use in Texas and schools. The program (which meets all the essential elements) is designed to bring the excitement of flight into the classroom curricula. It provides high interest activities which motivate pupils to learn basic science and mathematics.

Discovery
National Air and Space Museum
Smithsonian Institution
Washington,D.C. 20560
Flight and student activities are for grades K-3. They deal with aviation history, not aerodynamics. Ways activities may be used: teachers may direct large or small groups; students may direct their own activities; or teachers may write activities on cards for students to choose and perform independently or in small groups.

Resources for Teachers (continued)

Education Resource Center
National Air and Space Museum
Smithsonian Institution
Washington, D.C. 20560
(202) 786-2109
An access list of educational materials pertaining to aviation, space and the museum collection.

Elementary School Aerospace Activities
Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402
Stock No. 033-000-00693-4
Provides for the elementary teacher a much needed manual for guiding his/her thinking and planning when introducing aerospace development into his/her classroom programs. The instructional plan of this handbook follows an outline which presents an approximate chronological development of the story of man and flight with emphasis on flight into space. Included also are projections for future exploration of space and utilization of space flight capabilities. It includes activities suggested to correlate with the concept in that portion of the book. Each activity is marked with suggestions for appropriate age-level use.

Exploring Space Tour
National Air & Space Museum
Smithsonian Institution
Washington, D.C. 20560
This booklet was developed to assist the teacher in preparing the class for the Exploring Space Tour of the National Air and Space Museum.

History of Flight
National Air and Space Museum
Independence Avenue
Between 4th and 7th Streets, S.W.
Washington, D.C. 20560
This publication, like all National Air and Space Museum educational materials, may be used in conjunction with a docent-led educational tour of the Museum. Student activities are included.

How We Made the First Flight
Federal Aviation Administration
Office of Public Affairs, APA-120
Aviation Education Program
800 Independence Ave., S.W.
Washington, D.C. 20591
The story of the progress and growth of aviation is the story of technological advance. What the Wright brothers started with the first 120-foot flight on December 17, 1903 has led to space flight and in the process, changed life on earth forever.

I'd Rather Be Flying
Donna M. Vasko
565 S.E. Airpark Drive
Bend, Oregon 97702
Revised, updated and enlarged Second Edition by Donna Vasko. It reinforces her belief that we will always be able to laugh at ourselves and, no matter what other endeavor, would still "rather be flying". You'll find a great collection of Bumper Stickers.

JPL Fact Sheet
NASA
Jet Propulsion Laboratory
California Institute of Technology
National Aeronautic and Space Administration
Pasadena, California 91109
JPL Fact Sheet contains interesting articles regarding projects of the Jet Propulsion Lab in Pasadena, CA.

Living in Space Book I
Superintendent of Documents
U.S. Government of Printing Office
Washington, D.C. 20402
A resource guide with activities for elementary school students. Is designed to encourage pupils in the nation's elementary schools to take a greater interest in mathematics and science.

Living in Space Book II
Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402
A resource guide with activities for elementary school teachers. This is Book II Levels D, E, and F for grades 4, 5, and 6.

Resources for Teachers (continued)

NASA Space Link
Marshall Space Flight Center
Huntsville, Alabama
NASA Spacelink is a collection of NASA information and educational materials stored on a computer at the Marshall Space Flight Center in Huntsville, Alabama. The system may be accessed over regular telephone lines. It is designed to communicate with a wide variety of computers and modems, especially those most commonly found in classrooms and homes. NASA Spacelink is free, but you'll owe your telephone company for long distance calls.

New Mast
The National Science
Teachers Association
1742 Connecticut Avenue, N.W.
Washington, D.C. 20009
Workshops are offered through the NASA Educational Workshop for Math and Science Teachers. For more information contact them at the above address.

Report to Educators
National Aeronautics and
Space Administration
Washington, D.C. 20546
This is published quarterly for the educational community. Its contents are restricted to news and information about NASA.

Request for Placement on Mailing List
NASA Lyndon B. Johnson Space Center
ATTN: AP4/Public Affairs Office
2101 NASA Rd. 1
Houston, Texas 77058-3696
Request for placement on educational publications mailing list. Will be placed on their mailing list to receive information about NASA educational publications, films, and other items produced for general distribution. Just fill out one of their cards.

Seeing in a New Light
NASA
Education Affairs Division
CODE XE
National Aeronautics & Space Administration
Washington, D.C. 20277-2028
This Teacher's Guide is designed to be used with classes of varied sizes and abilities and can be adapted to different time schedules. It is written for middle school students (grades 6, 7, and 8), but many activities will appeal to younger and older students.

Skyline
National Air and Space Museum
Office of Education, P-700
National Air and Space Museum
Washington,D.C. 20560
Skyline is published four times a year to update interested citizens on programs of the National Air & Space Museum. To get on the mailing list, write to the above address.

Smithsonian Research Expeditions
The Smithsonian Institution
Smithsonian National Associates
Research Expedition Program
1100 Jefferson Drive, S.W.
Washington, D.C. 20560
The Smithsonian Institution conducts tours which includes Air and Space Archival Treasures and Creating Aerospace Curricula. For further information you can contact the Smithsonian Institution at the above address.

Space Station: A Research Laboratory in Space
Superintendent of Documents
U.S.Government Printing Office
Washington, D.C. 20402
The Space Station represents the commitment of the United States to a future in space.

Spacewatch
United States Space Foundation
P.O. Box 1838
Colorado Springs, CO 80901
This is a monthly publication of the U.S. Space Foundation.

Resources for Teachers (continued)

Spinoff
Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402
An illustrated summary of NASA's major aeronautical and space programs, their goals and directions, their contributions to American scientific and technological growth, and their potential for practical benefits in new products and processes.

State Department of Education
Division of Student Instructional Services
555 South Perry, Suite 308
Montgomery, Alabama 36130-0101
To subscribe to the newsletter you can write to the above address.

Station Break
NASA
Washington,D.C. 20546
A monthly newsletter on the Space Station Freedom Program. Get your class involved and keep track of this world changing program as it develops.

Teacher Resource Center Catalog
Teacher Resource Center
NASA Lyndon B. Johnson Space Center AP4
Houston, Texas 77058
(713) 483-8696
This book contains a list of the many resources and programs available in the Teacher Resource Center. Resources available for educators to copy include a slide library, audio cassette library, slide cassette programs, videotape library, computer programs and lesson plans. Film, blank cassettes and tapes, and computer disks must be furnished by the educator. Lesson plans can be copied at no charge. Johnson Space Center maintains a mailing list for educators and conducts an annual mailing with current aerospace brochures, lithographs, and workbooks when available.

Teacher's Guide to Aviation Education Resources
U.S. Dept. of Transp.
Federal Aviation Administration
Office of Public Affairs
Aviation Education Programs
800 Independence Ave., S.W.
Washington, D.C. 20591
This publication lists currently available aviation education materials from a variety of sources and how to obtain them. In compiling the list, we have tried to identify all available films, career information, periodicals and publications, and to assure that the sources are current and accurately listed.

Resources for Teachers (continued)

Teaching Space
P.O. Box 19270
Cincinnati, OH 45219
A newsletter for educators intent on bringing the excitement of the "new frontier" down to earth and into the classroom.

Texas Council of Elementary Science
Lester Hickman
1502 Lewis Drive
Garland, Texas 75041
The Texas Council of Elementary science was founded in November 1984. Texas is one of only two states to have an association devoted solely to the teaching of elementary science. Membership forms available.

The Aerospace Education Foundation
1501 Lee Highway
Arlington, Virginia 22209-1198
The foundation's programs run the full spectrum of aerospace education: from symposia on important issues affecting our national security to developing superior scientific and engineering talent and technical literacy in America.
To become a member or for more information contact them at the above address.

The Upper Atmosphere: Threshold of Space
NASA
Washington, D.C. 1981
Topics include Importance of the Upper Atmosphere, Airglow, Aurora, and Future Research.

The Space Shuttle at Work
Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402
"As the Space Shuttle first ascends above the atmosphere, it is fitting to describe the new space transportation system: how it came to be, why it is designed the way it is, what we expect of it, how it may grow."

Resources for Teachers (continued)

V-Gram
Carolyn Young
Jet Propulsion Laboratory
Mail Stop 264-316
4800 Oak Grove Drive
Pasadena, CA 91109
(818) 393-7955 - FTS 977-7955
Magellan Bulletin about Venus and the Radar Mapping Mission. This is published quarterly by the Magellan Project, Jet Propulsion Laboratory.

Welcome to the Universe of Starlab
Learning Technologies Incorporated
59 Walden Street
Cambridge, MA 02140
800-537-8703
Continuous development of the STARLAB projection system has now brought STARLAB's capabilities beyond those of a portable planetarium to a complete science teaching system.

COMPUTER SOFTWARE AND COMPUTER RELATED PROGRAMS

Let's Fly
Judson Independent School District
P.O. Box 249
Converse, Texas 78109
(512) 659-9621
Let's Fly was developed as an adjunct to Come Fly With Me by the Judson Independent School District with the assistance of the Texas Department of Aviation, Federal Aviation Administration, and the National Aeronautics and Space Administration. This program expands upon the motivational concepts of Come Fly With Me through the classroom use of computer technologies to assist students to learn basic science and mathematics, plus various other subjects such as language arts.

NASA Space Link
Marshall Space Flight Center
Huntsville, Alabama 35812
NASA Spacelink is a collection of NASA information and educational materials stored on a computer at the Marshall Space Flight Center in Huntsville, Alabama. The system may be accessed over regular telephone lines. It is designed to communicate with a wide variety of computers and modems, especially those most commonly found in classrooms and homes. NASA Spacelink is free, but you'll owe your telephone company for long distance calls.

Public Domain Software
Education Resource Center, Room P-700
National Air & Space Museum
Smithsonian Institution
Washington, D.C. 20560
This is the second edition of their catalog of software for both the Apple II series and the IBM PC. Most public domain software and shareware is written at the high school level and may not be appropriate for the very young user. Public domain software is not copyrighted, thus you are free to copy and distribute it as much as you want.

AUDIO/VIDEO PRESENTATIONS

Aviation Videos
Texas Department of Aviation
P.O. Box 12607
Austin, Texas 78711
(512) 476-9262
FAX (512) 479-0294
Listing of aviation video tapes (VHS) available from TDA library and designed for aviation instruction for pilots and students preparing for science and aerospace careers.

Films Catalog
Texas Department of Aviation
P.O. Box 12607
Austin, Texas 78711
(512) 476-9262
FAX (512) 479-0294
Listing of aviation 16mm films available from TDA library designed for aviation instruction and for pilots and students preparing for science and aerospace careers.

MODEL AIRCRAFT & DEMONSTRATION AIDS

Aerospace Spinoffs
Director, Technology Utilization Division
NASA Scientific & Technical Information Facility
Post Office Box 8757
Baltimore, Maryland 21240
This publication describes how NASA's acquired knowledge has been reapplied to new products and processes of benefit to the national economy industrial efficiency and human welfare.

Air Links
AG Industries
3832 148th Ave., N.E.
Redmond,WA 98052
(206) 885-4599
FAX: (206) 885-4672
AirLinks Flying Disks are the hottest new flying construction toy of the 1990's.

Albert Einstein Planetarium
National Air and Space Museum
6th St. and Independence Ave., S.W.
Washington, D.C. 20560
(202) 357-2700
The Albert Einstein Planetarium is one of the most advanced planetariums in the world. Show times seven days a week. For more information contact the Museum at the number above.

Aviation Education Programs
Beechcraft Aircraft Corporation
Aviation Education Dept. 84 B88
9709 East Central
Wichita, KS 67201
Includes how you can get information on Aviation Education Programs (of all grade levels) which includes: Teachers' Packet; Teachers Workbook; Aviation Text; King Air Orientation-Packet; Publication Discount and Scholarships.

Barrier Wear, Inc.
Astronaut Flight Apparel
178 Bodo Drive
Durango, CO 81301
(303) 259-6550
Includes information on astronaut flight apparel: jackets, overalls, trousers as well as order numbers and sizes.

Model Aircraft & Demonstration Aids (continued)

Cessna Skyhawk
Cessna Aircraft Co./Air Age Education
Wichita, Kansas 67201
Includes a Cessna Skyhawk chart with the main part of an airplane and the instrument panel.

Demonstration Aids for Aviation Education
U.S. Dept. of Transp.
Federal Aviation Administration
Office of Public Affairs
Aviation Education, APA-5
Washington, D.C. 20591
Demonstration Aids for Aviation Education

Discovery
National Air and Space Museum
Smithsonian Institution
Washington,D.C. 20560
Flight and student activities are for grades K-3. They deal with aviation history, not aerodynamics. Ways activities may be used: teachers may direct large or small groups; students may direct their own activities; or teachers may write activities on cards for students to choose and perform independently or in small groups.

Estes Flying Model Rocket Catalog
Civil Air Patrol
Supply Depot
14400 Airport Blvd.
Amarillo, Texas 79111
FAX: (806) 335-2416
Watts: (800) 858-4370
A listing of rockets, their order numbers and prices.

Federal Express Corporation
Box 727
Memphis, Tennessee 38194
(800) 238-5355
Styrofoam jet airplane models are available free of charge for student to assemble. Request item code DC-10.

Flying Things
Michael H. Tally
Science Supervisor
Wake County Public School System
Raleigh, North Carolina 27609
(919) 790-2515
Several illustrated activities that can be done using paper.

Model Aircraft Unit
Mr. Jeffrey Stiles
Academy of Model Aeronautics
1810 Samuel Morse Drive
Reston, VA 22010
Blueprints and lesson plans help with various model aircraft construction exercises. This organization sponsors local clubs throughout the nation.

Museum Products
Museum Products
3175 Gold Star Highway
Old Mystic Plaza
Mystic, Ct. 06355
(203) 536-6433
Catalog of unique products for instructing in the field of earth science.

Radio Control Aircraft
Civil Air Patrol Supply Depot
14400 Airport Blvd.
Amarillo, Texas 79111
1-800-858-4370
This is a supplier of radio control model airplanes and parts.

Samuel P. Langley Theater
National Air and Space Museum
6th St. and Independence Ave. S.W.
Washington, D.C. 20560
(202) 357-1686
Experience the wonder of flight in all its forms - See the marvels of the world unfold before your eyes - Climb into the cockpit with two daring pilots. Show times seven days a week. For tickets contact the Museum at the number above.

The Flying Bug
Cessna Aircraft Company
Department 783
P.O. Box 1521
Wichita, Kansas 67201
Cessna Pilot Centers offer the most modern type of flight training programs. The course combines both ground study and flight instruction so that everything fits together for the student as the student learns.

TRAINING SEMINARS AND CAREER INFORMATION

Aerospace Engineers--We're Tomorrow-Minded People
NASA
Education Services Branch
Academic Affairs Division
Washington, D.C. 1981
Thousands of people with different talents and interests have found rewarding careers as engineers in the aerospace industry. Many of them began preparing for their careers by reading pamphlets like this one.

Aerospace Scientists
NASA
Education Services Branch
Academic Affairs Division
NASA
Washington, D.C. 1981
Scientists sharing ideas and suggestions that can help you prepare for an enjoyable and satisfying career as a scientist.

Aviation Life Tales
Parks College
Saint Louis University
Cahokia, Illinois 62206
(618) 337-7500
Programs available in aerospace

Aviation Careers Series:
Aircraft Manufacturing Occupations
Superintendent of Documents
Retail Distribution Division
Consigned Branch
8610 Cherry Lane
Laurel, MD 20707
Aviation offers many varied opportunities for exciting and rewarding careers. The purpose of this pamphlet, and others in the Aviation Careers Series, is to provide information that will be useful in making career decisions. The FAA Aviation Careers Series divides careers into major job categories, with a pamphlet for each major category.

Careers in Aerospace and Related Fields
National Career Information Center
Francis E. Burtnett, Director
National Career Information Center
American Personnel and Guidance Asso.
Washington, D.C. 20009
A listing of information Sources: trade; professional; and educational sources. Also resources for space education.

Directory of College Aviation Degree Programs
Texas Department of Aviation
P.O. Box 12607
Austin, Texas 78711
(512) 486-9262
Information in this booklet includes the aviation and related courses, major, certificates and degrees offered. The specific office, department or division concerned and complete address of the institution.

Dr. Jerry D. Brown
National Space Technology Laboratories
NSTL, Mississippi 39529
(601) 688-3341
NASA is initiating a special course for science-oriented teachers, students, and education administrators. This course to be taught at National Space Technology Laboratories, will offer a basic astronautics and astrotech workshop.

Frontiers of Flight Museum
Frontiers of Flight Museum
Love Field Terminal, LB-34
Dallas, TX 75235
(214)350-3600
The Frontiers of Flight Museum at historic Love Field. An important cultural attraction for the Dallas-Fort Worth Metroplex, celebrating the region's extraordinary aviation heritage and exploring new frontiers of the air for tomorrow. A wonderful resource for Dallas area kids.

History of Flight Tour
National Air and Space Museum
Independence Avenue
Between 4th and 7th Streets, S.W.
Washington, D.C. 20560
This has been developed to assist each museum visitor in preparation for the History of Flight Tour of the National Air and Space Museum. For those persons not able to visit the Museum, the information is an introduction to the history of flight.

Individual Membership Application
American Helicopter Society
217 North Washington Street
Alexandria, Virginia 22314
Includes information about the American Helicopter Society and also includes membership application, AHS publications, special programs and meetings information.

Journal of the American Helicopter Society
217 N. Washington St.
Alexandria, VA 22314
(703) 684-6777
The scope of the Journal consists of three general categories: research and engineering, design and manufacturing, and operations.

Limitless Horizons Careers in Aerospace
NASA
Academic Affairs Division
National Aeronautics & Space Administration
Washington, D.C. 1980
You will find information relating to career choices in aerospace science, engineering, and technology.

Training Seminars and Career Information (continued)

Pilot & Flight Engineers
Government Careers
Aviation Maintenance
Airport Careers
Aircraft Manufacturing Careers
Airline Careers
Flight Attendants
Superintendent of Documents
Retail Distribution Division
Consigned Branch
8610 Cherry Lane
Laurel, MD 20707
Aviation offers many varied opportunities for exciting and rewarding careers such as pilot and flight engineers, government careers, aviation maintenance, airport careers, aircraft manufacturing careers, airline careers and flight attendants. You may obtain pamphlets on aviation career opportunities by sending a self-addressed mail label with your request to the address above.

Pilot/Flight Officer Navy
Department of the Navy
Navy Recruiting Command
4015 Wilson Boulevard
Arlington, Virginia 22203-1991
Information on training courses and rewards.

Pilot Training Guide
Future Aviation Professionals of America
1-800-JET-JOBS
This is a partial list from the Collegiate Aviation Directory. The directory also lists aero-academic programs, flight education, aircraft, and simulators, as well as other general information about the college. It is available from FAPA just call the 1-800 number listed above.

Space Camp
The Space & Rocket Center
One Tranquility Base
Huntsville, AL 35807
U.S. Space Camp/Academy is an educational program which couples classroom instruction with hands-on activities. Trainees learn about space flight and the space program in lectures and seminars, and put this information to practical use with our simulators and tours.

Texas Southern University
3100 Cleburne Avenue
Houston, Texas 77004
(713) 527-7097
Includes information in their Bachelor and Master of Science degree program in Airway Science.

The Graduate Program
in Computational Fluid Dynamics
at the University of Texas at Arlington
Dr. Dale Anderson
Department of Aerospace Engineering
UTA Box 19018
Arlington, Texas 76019
(817) 273-2620
This brochure explains the who, what and why of computational fluid dynamics. Also what facilities are available and what qualifications are necessary for admission are discussed.

The 99 News
Will Rogers World Airport
P.O. Box 59965
Oklahoma City, Oklahoma 73159
The Ninety-Nine News is published monthly by the Ninety-Nines Incorporated, International Women Pilots, Publication Division. The Ninety-Nines Inc. is a non-profit organization engaged in education, charitable and scientific activities and purposes.

Vertiflite
217 N. Washington Street
Alexandria, VA 22314
Vertiflite is the official publication of the American Helicopter Society, the professional Society for the advancement of vertical flight technology and its useful application throughout the world.

AEROSPACE AND AVIATION EDUCATION IN THE PRIMARY GRADES

Contributed by Suzanne Moore

Ames, Lee J. Draw fifty airplanes, aircraft and space. New York: Doubleday, 1977.

Step-by-step guidance for anyone to produce drawings of various aircraft. Most pages provide six to eight steps toward completing the final drawings. Excellent for use as a following-directions exercise for a whole-group activity.

Anthony, Margaret. Moonstruck in Mansfield. *Science and Children,* Vol. 20, No. 7, April 1983, pp. 10-11.

NASA's Lunar Sample Educational Disc Program is a national effort to stimulate interest in the moon and provide students with opportunities to study moon samples directly. Activities with the rocks and one school, and information on bringing lunar samples to other schools, are provided.

Bierly, Ken. Space shuttle. *Instructor,* Vol. 90, No. 7, February 1981, pp. 47-50, 52, 54.

This article presents an elementary teaching unit on NASAS's space program, including teacher background information, suggested student activities, and lists of resources. Appended is a transcript of an interview conducted by elementary school children with astronaut candidate Woody Spring.

Butler, Della. Space shuttle. Kansas State Department of Education. Topeka, Kansas, 1979.

This teacher's guide and student materials provide students with an understanding of the space shuttle as a type of transportation for conveying goods and performing services in space. It is appropriate for learning centers or whole-group instruction. Activities include labeling parts of the orbiter, recycling, and learning aerospace terms.

Cain, Peggy W. and Welch, D.W. Astronomy activities for the classroom. South Carolina State Department of Education. Columbia, South Carolina, 1980.

Activity-oriented astronomy activities. Topics include sun and moon positions and properties of light. The experiences are quick and easy to prepare so the lessons will be effective without becoming overwhelming and time consuming.

Center for Aerospace Education. Four-in-one aerospace coloring books. Canton, Ohio: Civil Air Patrol.

Introduces in colorable, cartoon-style art the basic concepts of aerospace science. Topics include weather, the concept of lighter-than-air, aerospace careers, and navigation.

Center for Aerospace Education. Space shuttle: a space transportation system. Canton, Ohio: Civil Air Patrol.

A packet for learning through activities that introduce the shuttle structure and its basic mission. The puzzles and games involve all curriculum areas. The packet has suggested activities for third graders.

Coleman, C.C. Von Braun's dream: space camp. *Aviation/Space,* Vol. 9, No. 3-4, Summer 1982, pp. 38-39.

This article describes the "Space Camp" program for boys and girls at the Alabama Space and Rocket Center at Huntsville, Alabama. Included are typical activities and addresses for getting information about participating.

Crandall, A. and Merenda, R. Learning that really flies. *Early Years,* Vol. 10, October 1979, pp. 62-65.

A thematic approach to teaching oral language, thinking skills, listening, reading, and writing for Grades K-2 in a unit on aviation. A hands-on approach to learning including field trips and "building" an airplane in the classroom out of cardboard boxes.

Federal Aviation Administration. Aviation science activities for elementary grades. Washington, D.C.: Department of Transportation, 1983.

This guide contains the procedures and lists of materials needed for 105 aviation activities, demonstrations, and experiments. Many activities are suitable for the primary grades.

Federal Aviation Administration. Teacher's guide for aviation education. Washington, D.C.: Department of Transportation, 1983.

A collection of activities centered around the topic of aviation. Three of the five sections are appropriate for second and third graders: Communication arts, science,and social studies.

Greenstone, Sid and Smith, M. Primary astronomy. Manitoba Department of Education. Winipeg, 1981.

Selected materials to teach astronomy. Suggested procedures, activities, audiovisual materials, and materials available from NASA are included. A hands-on approach to astronomy, the activities include making constellation "slides: of black construction papers, and constellation cans from juice cans.

Harris, D. The place of astronomy in schools. *Physics Education,* Vol. 17, No. 4, July 1982, pp. 154-157.

Suggests ways of incorporating astronomy into the elementary and secondary curriculum, including field trips, science clubs, and the development of astronomy sections for British school syllabi.

Housel, David C. and Housel, D. *Come Fly With Me.* Michigan Aeronautics Commission. Lansing, 1983.

An organized group of materials for Grades k-6 which has clear objectives for each grade level. The activities help students advance from basic concrete thinking skills to more advanced abstract thinking skills, and expand their curiosity. This guide has been adopted by the Texas Department of Aviation, and the Essential Elements have been matched with each activity objective.

King, Richard. Solar cookers. *Science and Children,* Vol. 18, No. 7, April 1981, pp. 6-8.

Describes how to build a coker out of easy-to-find materials. A good hand-on activity for second and third graders to learn about heat and light physics, engineering, and solar astronomy.

Kopp, O.W. Elementary school aerospace activities: a resource for teachers. Washington, D.C.: National Aeronautics and Space Administration, 1977.

A resource for teachers, developed for curriculum at the elementary level. Lists audiovisual materials and bibliography in the appendix.

McIntire, Margaret. First steps in astronomy. *Science and Children.* Vol. 18, No. 4, January 1981, pp. 36-37.

An overview of basic concepts which can be taught in Grades P, K-3. Topics include space on earth, the sun as the nearest star, how to study the moon, and the nearness and farness of starts.

Matson, Wayne R. and Bettenberg, J. The directory of aviation and space education. Washington, D.C.: American Society for Aerospace Education, 1980.

A guide for teachers at the primary, secondary, and college levels. Listed are organizations and materials (books, periodicals, and audiovisual materials) as well as information about receiving free or low-cost materials.

Montgomery, A. The astounding stars, *Instructor,* Vol. 93, No. 72, November/December 1983.

A short article covering the basics of constellations, myths, and fables of ancient peoples. "Star math" activities include plotting constellations on graph paper, and making a planetarium out of an old umbrella. Suitable for second and third grade.

Oklahoma State Department of Education. High flight. Aerospace activities, K-12. Oklahoma City, 1982.

Interdisciplinary activities are presented for all grade levels. Grades K-3 activities include making an illustrated picture dictionary of space-related words, making and flying paper airplanes, and plenty of hands-on experiences.

Outdoor Education Series. Activities for studying heavenly bodies. Montgomery County Public Schools. Rockville, Maryland, 1979.

This guide provides interesting, hands-on activities involving interdisciplinary skills. Daytime and nighttime activities are listed.

Ross, Dave. Making space puppets. New York: Watts, 1980.

Directions for making space creature puppets out of easy-to-find materials.

Rustay, Gladys. Astronomy activities. *Science and Children,* Vol. 18, No. 29, April 1981, p. 29.

A brief listing of activities, including: Having students design their own constellations, discussing Indian legends about stars, and taking an imaginary moon walk with helmets made of milk cartons.

Sarko, Tom. Down-to-earth astronomy. *Science and Children.* vol. 20, No. 4, p. 85.

How to convey the immensity of the universe to elementary students using distances between familiar places. The author used local landmarks, and established his classroom as the Sun. Although the model does not reflect the relative size of objects in the universe, it reduces the immensity of distances to a more teachable size.

Steinberg, F.S. Aboard the space shuttle. Washington, D.C.: National Aeronautics and Space Administration, 1980.

A pamphlet containing color photos and diagrams which illustrate living conditions aboard the space shuttle.

Thorne, Muriel M., editor. NASA, the first 25 years: 1958-1983. Washington, D.C.: National Aeronautics and Space Administration, 1983.

This book is designed as a reference base from which teachers can develop concepts and activities for use in the classroom.

Wagner, Richard, Space shuttle to color, cut out, and fly. New York: Price/Stern/Sloan, 1979.

Make models of the space shuttle for the classroom learning center. The Columbia model incorporates the silver paper cover of the book.

Wahla, J.C. Using the overhead to stargaze, *Science and Children,* Vol. 19, No. 8, May 1982, pp. 19-21.

An overview of using the overhead projector to teach astronomy concepts to elementary students. It may be used to demonstrate how light travels in straight lines, to teach the geography of the moon, and to project star maps. Also included are directions for students to make moon-phase calendars.

Ward, Alan. Infants can study air science. *School Science Review,* Vol. 64, No. 229, June 1983, pp. 656-60.

Provided are activities and demonstrations which can be used to teach preschoolers about the nature of air, the uses of air, and objects that fly in the air.